

CLAIMS

1. A quadrature modulation apparatus comprising:

an in-phase signal converting means that outputs an in-phase conversion signal by mixing an in-phase local signal of a predetermined local frequency with an in-phase correction user signal obtained by adding an in-phase user signal to an in-phase correction signal of a sinusoidal voltage;

a quadrature signal converting means that outputs a quadrature conversion signal by mixing a quadrature local signal which is different in phase by 90 degrees from the in-phase local signal, with a quadrature correction user signal obtained by adding a quadrature user signal to a quadrature correction signal, which is different in phase by 90 degrees from the in-phase correction signal;

an adding means that adds the in-phase conversion signal to the quadrature conversion signal;

an output voltage measuring means that measures an output voltage of said adding means; and

an error determining means that determines an error of the quadrature modulation based upon the measurement result of said output voltage measuring means.

2. The quadrature modulation apparatus according to claim 1, wherein said error determining means measures the error of the quadrature modulation based upon a relationship of the output voltage of said adding means with respect to the phase of the in-phase correction signal or the quadrature correction signal.

3. The quadrature modulation apparatus according to claim 1, wherein

said error determining means determines an error relating to an amplitude, an orthogonality, and an offset of the in-phase user signal and the quadrature user signal.

4. A quadrature modulation apparatus comprising:

a signal converting means that outputs a conversion signal by mixing a local signal of a predetermined local frequency with an offset user signal obtained by adding a DC voltage signal to a user signal;

an output voltage measuring means that measures a voltage of the conversion signal; and

an optimum voltage deciding means that decides an optimum voltage such that the voltage measured by said output voltage measuring means is minimum.

5. A quadrature modulation method comprising:

an in-phase signal converting step of outputting an in-phase conversion signal by mixing an in-phase local signal of a predetermined local frequency with an in-phase correction user signal obtained by adding an in-phase user signal to an in-phase correction signal of a sinusoidal voltage;

a quadrature signal converting step of outputting a quadrature conversion signal by mixing a quadrature local signal which is different in phase by 90 degrees from the in-phase local signal, with a quadrature correction user signal obtained by adding a quadrature user signal to a quadrature correction signal, which is different in phase by 90 degrees from the in-phase correction signal;

an adding step of adding the in-phase conversion signal to the quadrature conversion signal;

an output voltage measuring step of measuring an output voltage of

said adding step; and

an error determining step of determining an error of the quadrature modulation based upon the measurement result of said output voltage measuring step.

6. A quadrature modulation method comprising:

a signal converting step of outputting a conversion signal by mixing a local signal of a predetermined local frequency with an offset user signal obtained by adding a DC voltage signal to a user signal;

an output voltage measuring step of measuring a voltage of the conversion signal; and

an optimum voltage deciding step of deciding an optimum voltage such that the voltage measured by said output voltage measuring step is minimum.

7. A program of instructions for execution by the computer to perform a processing of a quadrature modulation apparatus including: an in-phase signal converting means that outputs an in-phase conversion signal by mixing an in-phase local signal of a predetermined local frequency with an in-phase correction user signal obtained by adding an in-phase user signal to an in-phase correction signal of a sinusoidal voltage; a quadrature signal converting means that outputs a quadrature conversion signal by mixing a quadrature local signal which is different in phase by 90 degrees from the in-phase local signal, with a quadrature correction user signal obtained by adding a quadrature user signal to a quadrature correction signal, which is different in phase by 90 degrees from the in-phase correction signal; an adding means that adds the in-phase conversion signal to the quadrature conversion signal; and an output voltage measuring means that measures an

output voltage of said adding means, said processing comprising:

an error determining step of determining an error of the quadrature modulation based upon the measurement result of said output voltage measuring means.

8. A program of instructions for execution by the computer to perform a processing of a quadrature modulation apparatus including: a signal converting means that outputs a conversion signal by mixing a local signal of a predetermined local frequency with an offset user signal obtained by adding a DC voltage signal to a user signal; and an output voltage measuring means that measures a voltage of the conversion signal, said processing comprising:

an optimum voltage deciding step of deciding an optimum voltage such that the voltage measured by said output voltage measuring means is minimum.

9. A computer-readable medium having a program of instructions for execution by the computer to perform a processing of a quadrature modulation apparatus including: an in-phase signal converting means that outputs an in-phase conversion signal by mixing an in-phase local signal of a predetermined local frequency with an in-phase correction user signal obtained by adding an in-phase user signal to an in-phase correction signal of a sinusoidal voltage; a quadrature signal converting means that outputs a quadrature conversion signal by mixing a quadrature local signal which is different in phase by 90 degrees from the in-phase local signal, with a quadrature correction user signal obtained by adding a quadrature user signal to a quadrature correction signal, which is different in phase by 90 degrees from the in-phase correction signal; an adding means that adds the

in-phase conversion signal to the quadrature conversion signal; and an output voltage measuring means that measures an output voltage of said adding means, said processing comprising:

an error determining step of determining an error of the quadrature modulation based upon the measurement result of said output voltage measuring means.

10. A computer-readable medium having a program of instructions for execution by the computer to perform a processing of a quadrature modulation apparatus including: a signal converting means that outputs a conversion signal by mixing a local signal of a predetermined local frequency with an offset user signal obtained by adding a DC voltage signal to a user signal; and an output voltage measuring means that measures a voltage of the conversion signal, said processing comprising:

an optimum voltage deciding step of deciding an optimum voltage such that the voltage measured by said output voltage measuring means is minimum.